



PATENT APPLICATION  
Docket No: 14321.74

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of )  
Tadayuki Imai et al. )  
Serial No.: 10/534,635 ✓ ) Art Unit  
Filing Date: May 11, 2005 ) 2871  
Confirmation No.: 8645 )  
For: OPTICAL WAVEGUIDE MATERIAL AND )  
OPTICAL WAVEGUIDE )

CERTIFICATE OF DEPOSIT UNDER 37 C.F.R. § 1.8

I hereby certify that the following documents are being deposited with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to: Commissioner for Patents, PO Box 1450, Alexandria, Virginia 22313-1450, on the 5<sup>th</sup> day of December 2005.

- Transmittal for Information Disclosure Statement (3 pages)
- Information Disclosure Statement (3 pages)
- Form PTO-1449 listing 13 references (2 pages)
- A copy of each of the non-US references listed on the Form PTO-1449
- Postcard

Respectfully submitted,

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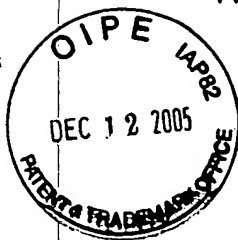
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## TRANSMITTAL FOR INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Transmitted herewith for filing and pursuant to 37 C.F.R. § 1.97 is an Information Disclosure Statement, which includes the following statements, if any, required variously by 37 C.F.R. § 1.98:

- ☒ Statement of relevance of selected cited references not in the English language which are not translated.
- ☐ Statement that selected cited references are substantially cumulative of an enclosed or previously submitted reference.
- ☐ Statement that selected cited references were previously cited by or submitted to the United States Patent and Trademark Office in a prior application which is relied upon for an earlier filing date under 35 U.S.C. § 120.

A. Additional Materials Required Due to Content of Information Disclosure Statement

Transmitted are the following documents in addition to the Information Disclosure Statement as required variously under 37 C.F.R. § 1.98:

- ☒ Form PTO-1449 listing 13 references submitted for consideration.
- ☒ A copy of the non-US references listed on the Form PTO-1449.
- ☐ English translations of \_\_\_ (\_\_\_) of the references listed on the Form PTO-1449 which are not in the English language.
- ☐ Copies of the following documents from the prosecution of a previous, related application:
  - ☐ Form PTO-1449 AND INFORMATION DISCLOSURE STATEMENT; and
  - ☐ Form PTO-892

B. Additional Materials Required Due to Timing of Filing of Information Disclosure Statement

The transmitted Information Disclosure Statement is being filed within one (1) of the following four (4) time periods:

- I. ☒ Prior to the later of either three (3) months following the filing date or the mailing of a first Office Action. Accordingly, no materials other than those listed above are enclosed.
- II. ☐ Following the latter of either three (3) months following the filing date or the mailing of a first Office Action, but before the mailing of a final Office Action or a Notice of Allowance. Accordingly, to secure consideration thereof, one (1) of the following is also enclosed:
  - ☐ Promptness Certification; or
  - ☐ Check No. \_\_\_\_\_ in the amount of \_\_\_ constituting the submission fee set forth in 37 C.F.R. § 1.17(p).
- III. ☐ After the mailing of a Notice of Allowance, but before payment of the Issue Fee. Accordingly, in order to secure consideration thereof, each of the following are also enclosed:
  - ☐ Promptness Certificate;
  - ☐ Petition for Consideration; and

- \_\_\_ Check No. in the amount of \_\_\_ constituting the petition fee set forth in 37 C.F.R. § 1.17(i)(1).
- IV. \_\_\_ After payment of the Issue Fee. Accordingly, in order to secure consideration thereof, each of the following are also enclosed:
- \_\_\_ Petition to Withdraw from Issue; and
- \_\_\_ Check No. \_\_\_ in the amount of \_\_\_ constituting the petition fee set forth in 37 C.F.R. § 1.17(i)(1).

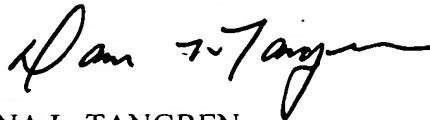
C. Fees

The Commissioner is hereby authorized to charge payment of or any deficiency in the following fees associated with this communication, or to credit any overpayment thereof, to Deposit Account No. 23-3178. A duplicate copy of this letter is enclosed.

- X Any fee required in relation to filing of this letter or any documents transmitted therewith.
- \_\_\_ The submission fee set forth in 37 C.F.R. § 1.17(p) in the event that 37 C.F.R. § 1.97(c) applies and the Examiner is not satisfied that any Promptness Certificate submitted meets the requirements of 37 C.F.R. § 1.97(e).
- \_\_\_ The submission fee set forth in 37 C.F.R. § 1.17(p).
- \_\_\_ The petition fee set forth in 37 C.F.R. § 1.17(i)(1).

Dated this 5<sup>th</sup> day of December 2005.

Respectfully submitted,



DANA L. TANGREN  
Attorney for Applicant  
Registration No. 37,246  
Customer No. 022913  
Telephone No. 801.533.9800



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) Art Unit  
) 2871  
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INFORMATION DISCLOSURE STATEMENT  
UNDER 37 C.F.R. § 1.97

Commissioner for Patents  
PO Box 1450  
Alexandria, Virginia 22313-1450

Sir:

Please find, pursuant to 37 C.F.R. § 1.98(a)(1), the enclosed Form PTO-1449 which contains a list of all patents, publications, or other items that have come to the attention of one or more of the individuals designated in 37 C.F.R. § 1.56(c). While no representation is made that these references may be "prior art" within the meaning of that term under 35 U.S.C. §§ 102 or 103, the enclosed listed references are disclosed so as to fully comply with the duty of disclosure set forth in 37 C.F.R. § 1.56.

Moreover, while no representation is made that a specific search of office files or patent office records has been conducted or that no better art exists, the undersigned attorney of record believes that the enclosed art is the closest to the claimed invention (taken in its entirety) of which the undersigned is presently aware, and no art which is closer to the claimed invention (taken in its entirety) has been knowingly withheld.

In accordance with 37 C.F.R. §§ 1.97 and 1.98, a copy of each of the listed references or relevant portion thereof that is not a US patent document is also enclosed.

Statement of Relevance of References Listed  
Unaccompanied by English Translation  
Under 37 CFR § 1.98(a)(3)

In accordance with 37 CFR § 1.98(a)(3), the following concise explanation of the relevance of each listed reference that is not in the English language and unaccompanied by a translation into English is provided.

Japanese Patent JP 8-6083: See U.S. Patent No. 5,581,396 for translation which is the corresponding US Patent.

Japanese Patent JP8-190020: PURPOSE: To provide a hologram recording material comprising potassium tantalate niobate in which a hologram can be fixed by incorporating hydrogen ion into an electro-optical crystal comprising potassium niobate tantalate. CONSTITUTION: When a single crystal is grown from a fused liquid of oxides of tantalum, niobium, potassium, and the like, the fused liquid is made to react with hydrogen gas or water vapor so as to add hydrogen ions to the single crystal of potassium tantalate niobate. Two laser beams 3, 4 making 20 degree angle from each other are made to enter a hologram recording material comprising potassium tantalate niobate containing hydrogen ions to form space charges by electrons or holes. The crystal is subjected to heat treatment to move the hydrogen ions to compensate the space charges. Then the crystal is cooled to room temp. and irradiated with homogeneous light. Since hydrogen ions hardly move at room temp., the space charges by hydrogen ions remain as a replica.

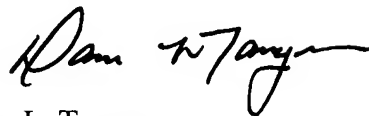
Japanese Patent JP 11-335199: See U.S. Patent No. 6,447,606 for translation which is the corresponding US Patent.

Japanese Patent JP11-352862: PROBLEM TO BE SOLVED: To surely incorporate hydrogen ions in a crystal by forming oxygen vacancies in an optical crystal and after that, absorbing steam. SOLUTION: The oxygen vacancies are formed in optical crystal and after that steam is absorbed. Specifically, a single crystal is grown from the mixture prepared by adding granules of metal copper into a raw material for growing pure potassium tantalate niobate. The resultant perovskite type single crystal keeps high hydrogen ion concentration in the larger adding quantity than that of CuO, though there is a tendency to decrease the hydrogen ion concentration with the increase of the adding quantity. This means that excess oxygen vacancies are formed in the potassium tantalate niobate single crystal growing by oxygen deficiency when metal copper is used as the raw material in stead of CuO. Hydrogen ions are incorporated into the crystal so that steam in ambient air enters the oxygen vacancies at the time of cooling to a room temp. after the growth of the crystal. Then, hydrogen ions are surely incorporated into the crystal.

Japanese Patent JP 2003-35831: See U.S. Patent Publication No. 2003/0072550 for translation which is the corresponding US Patent.

Dated this 5<sup>th</sup> day of December 2005.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Dana L. Tangren", with a stylized flourish at the end.

Dana L. Tangren  
Attorney for Applicant  
Registration No. 37,246  
Customer No. 022913  
Telephone No. 801.533.9800

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Applicant: Tadayuki Imai et al.

Confirmation No.: 8645

Serial No.: 10/534,635

Att'y Docket No.: 14321.74

Filing Date: May 11, 2005

Art Unit: 2871

For: OPTICAL WAVEGUIDE MATERIAL AND OPTICAL WAVEGUIDE

INFORMATION DISCLOSURE CITATIONS MADE BY APPLICANTU.S. Patent Documents

<u>Examiner Initial*</u>	<u>Document Number</u>	<u>Issue Date</u>	<u>Name</u>
____ 1	5,581,396	12/03/1996	Kubota et al.
____ 2	6,447,606 B2	09/10/2002	Imaeda et al.
____ 3	2003/0072550 A1	04/17/2003	Sasaura et al.

Foreign Patent Documents

<u>Examiner Initial*</u>	<u>Document Number</u>	<u>Publication Date</u>	<u>Country or Patent Office</u>	<u>Translation</u>
____ 4	1 248 143 A2	10/09/2002	EP	N/A
____ 5	1 260 839 A2	11/27/2002	EP	N/A
____ 6	8-6083	12/01/1996	Japan	No
____ 7	8-190020	07/23/1996	Japan	No
____ 8	11-335199	07/12/1999	Japan	No
____ 9	11-352862	12/24/1999	Japan	No
____ 10	2003-35831	02/07/2003	Japan	No
____ 11	2 262 520 A	06/23/1993	United Kingdom	N/A

Examiner:

Date Considered:

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609, draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



Form PTO-1449

Applicant: Tadayuki Imai et al.  
Serial No.: 10/534,635  
Filing Date: May 11, 2005  
For: OPTICAL WAVEGUIDE MATERIAL AND OPTICAL WAVEGUIDE



Sheet 2 of 2  
Confirmation No.: 8645  
Att'y Docket No.: 14321.74  
Art Unit: 2871

Other Documents

(including author, title, pertinent pages, etc.)

Examiner

Initial\*

- \_\_\_\_\_ 12 R.E. Fontana, Jr., et al., *Epitaxially Grown Single Crystal KTN for Thin Film Optical Modulators*, IEEE Journal of Quantum Electronics, Vol. 11, No. 9, September 1975, pp. 860.
- \_\_\_\_\_ 13 J. Hulliger et al., *Exploratory Technique in Liquid Phase Epitaxy of Potassium Tantalate Niobate*, Journal of Crystal Growth, Vol. 99, No. 1-4, January 1990, pp. 634-637.

**References Cited by Applicants**

While the filing of Information Disclosure Statements is voluntary, the procedure is governed by the guidelines of Section 609 of the Manual of Patent Examining Procedure and 37 C.F.R. §§ 1.97 and 1.98. To be considered a proper Information Disclosure Statement, Form PTO-1449 shall be accompanied by a copy of each listed patent or publication or other item of information and a translation of the pertinent portions of foreign documents (if an existing translation is readily available to the applicant), an explanation of relevance of each reference not in the English language, and should be submitted in a timely manner as set out in MPEP Sec. 609.

Examiners will consider all citations submitted in conformance with 37 C.F.R. § 1.98 and MPEP Sec. 609 and place their initials adjacent the citations in the spaces provided on this form. Examiners will also initial citations not in conformance with the guidelines which may have been considered. A reference may be considered by the Examiner for any reason whether or not the citation is in full conformance with the guidelines. A line will be drawn through a citation if it is not in conformance with the guidelines AND has not been considered. A copy of the submitted form, as reviewed by the Examiner, will be returned to the applicant with the next communication. The original of the form will be entered into the application file.

Each citation initialed by the Examiner will be printed on the issued patent in the same manner as references cited by the Examiner on Form PTO-892.

The reference designations "A1," "A2," etc. (referring to Applicant's reference 1, Applicant's reference 2, etc.) will be used by the Examiner in the same manner as Examiner's reference designations "A," "B," "C," etc. on Office Action Form PTO-1142.

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Examiner:

Date Considered:

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609, draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.